Indiana Department of Education STEM Certification Evaluation Rubric

NOTE: Essential Elements are identified in gray

NOTE: As you move to the right on the rubric for each element, from Developing to Approaching and from Approaching to Innovating, it is understood that the criteria in the category to the left have been met.

Element	Investigating	Developing	Approaching	Innovating	Element Score	Evidenced By: (Examples listed below. You may choose your own evidence to support your score)	References
	0 points	1 point	2 points	3 points			
1.1 Decision-Making	Does not yet meet minimum indicators for Developing	Decision-making regarding planning and implementing the school's STEM plan is the work of a school team, comprised of administrators, teachers and community partners, and includes input from at least 25 percent of the certified staff	Decision-making regarding planning and implementing the school's STEM plan is the work of a school team, comprised of administrators, teachers and community partners, and includes input from at least 50 percent of the certified staff	Decision-making regarding planning and implementing the school's STEM plan is the work of a school team, comprised of administrators, teachers and community partners, and includes input from at least 75 percent of the certified staff		•Meeting schedule •Meeting minutes •Meeting agenda(s) •Roster of team members •Survey results •School wide STEM plan	8, 9, 10, 21, 22
1.2 School Schedules	Does not yet meet minimum indicators for Developing	On at least a monthly basis, the school schedule allows for dedicated time to implement integrated STEM instruction	On at least a weekly basis, the school schedule allows for dedicated time to implement integrated STEM instruction	The school schedule is designed to allow for seamless implementation of integrated STEM instruction		•School master schedule •Summary of how school provides dedicated time for integrated STEM instruction	4, 14,15, 18
1.3 Common Work Time	Does not yet meet minimum indicators for Developing	Common work time is provided, on a monthly basis, where teachers plan integrated STEM learning opportunities as an interdisciplinary team	Common work time is provided, on a bi-weekly basis, where teachers plan integrated STEM learning opportunities as an interdisciplinary team	Common work time is provided, on a weekly basis, where teachers plan integrated STEM learning opportunities as an interdisciplinary team		•Meeting schedule •Roster of participants •Meeting minutes	4, 6, 8, 9, 10, 14, 15, 18, 22
1.4 Classroom Layout	Does not yet meet minimum indicators for Developing	At least 25 percent of teachers have the autonomy to arrange their instructional space, as needed	At least 50 percent of teachers have the autonomy to arrange their instructional space, as needed	At least 75 percent of teachers have the autonomy to arrange their instructional space, as needed		•Pictures of classrooms •Site visit	1, 3
1.5 Sustainability Plan	Does not yet meet minimum indicators for Developing	There is a two-year STEM certification sustainability plan in place including technology and STEM curriculum	There is a three-year STEM certification sustainability plan in place including technology and STEM curriculum	There is a five-year STEM certification sustainability plan in place including technology and STEM curriculum		•Technology plan •Curriculum funding plan	8, 9, 10, 14, 22, 23
1.6 Measurement of Students' Attitudes/Interests	Does not yet meet minimum indicators for Developing	Informal methods are used to measure students' attitudes toward STEM and/or interest in STEM classes/career pathways	Formal measurement of students' attitudes toward STEM and/or interest in STEM classes/career pathways are measured at the beginning and end of each school year	The school's STEM plan is revised, as needed, based upon analysis of this data		•Course/program enrollment/participation trends •Student Attitudes toward STEM (S-STEM) Survey •STEM Semantics Survey •Career Interest Questionnaire •Test of Science Related Attitudes (TOSRA) •Locally created survey •Description of revisions based upon data analysis	22, 25
1.7 Student/Parent Feedback Data	Does not yet meet minimum indicators for Developing	Student or parent feedback regarding STEM integration is only collected on an informal basis	There is a formal collection of student and parent feedback regarding STEM integration on an annual basis	The school's STEM plan is revised, as needed, based upon analysis of this data		•Copy of survey(s) •Summary of data •Description of revisions based upon data analysis	20, 22
1.8 STEM Instruction	Does not yet meet minimum indicators for Developing	Evaluation indicators have been determined, in the current local evaluation instrument or through modifying the local evaluation instrument, for identifying targeted STEM instructional practices	All evaluators are trained in observing targeted STEM instructional practices, using the local evaluation instrument	Evaluators incorporate feedback on targeted STEM instructional practices in formative and summative evaluations, using the local evaluation instrument		•Copy of local evaluation instrument with indicators of alignment with STEM instructional practices •Training documentation with agenda •Samples of feedback provided to teachers •List of identified indicators targeted to STEM instructional practices •Roster of attendees	1, 12

Domain 1: Culture

Element	Investigating 0 points	Developing 1 point	Approaching 2 points	Innovating 3 points	Element Score	Evidenced By: (Examples listed below. You may choose your own evidence to support your score)	References
1.9 Instructional Support	Does not yet meet minimum indicators for Developing	At least 75 percent of teachers experience at least one of these forms of instructional supports, related to STEM instruction, annually: 1) peer observation 2) lesson study 3) critical feedback 4) coaching 5) modeling 6) action research 7) mentoring 8) targeted professional development sessions 9) curriculum training	At least 75 percent of teachers experience at least one of these forms of instructional supports, related to STEM instruction, bi-annually: 1) peer observation 2) lesson study 3) critical feedback 4) coaching 5) modeling 6) action research 7) mentoring 8) targeted professional development sessions 9) curriculum training	At least 75 percent of teachers experience at least one of these forms of instructional supports, related to STEM instruction, on a quarterly basis: 1) peer observation 2) lesson study 3) critical feedback 4) coaching 5) modeling 6) action research 7) mentoring 8) targeted professional development sessions 9) curriculum training		•Summary of supports provided using teacher roster •Teacher reflections (Journaling) •Summary of survey responses based upon provided supports	5, 8, 9, 10, 11, 14, 16, 17, 18, 21
1.10 STEM Communications	Does not yet meet minimum indicators for Developing	Communication tools (e.g., website, newsletters, social media, webinars, meetings, etc.) are used two-three times per year to communicate about STEM education	Communication tools (e.g., website, newsletters, social media, webinars, meetings, etc.) are used eight-10 times per year to communicate about STEM education	Communication tools (e.g., website, newsletters, social media, webinars, meetings, etc.) are used two-three times per month to communicate about STEM education		•Links to communications •Calendar of communications •Social media feeds/posts	8, 9, 10, 14, 17, 22
1.11 Equity	Does not yet meet minimum indicators for Developing	Elementary: At least 50 percent of students participate in integrated STEM instruction/programming Middle School and High School: STEM elective enrollment, including AP/dual credit, is within 50% of school demographics	Elementary: At least 75 percent of students participate in integrated STEM instruction/programming Middle School and High School: STEM elective enrollment, including AP/dual credit, is within 25% of school demographics	Elementary: 100 percent of students participate in integrated STEM instruction/programming Middle School and High School: STEM elective enrollment, including AP/dual credit, mirrors school demographics		•Curriculum maps •Course offerings •School schedule •STEM enrollments with demographic breakdown (Special Ed Status, Gender, Minorities, etc...) •Description of how STEM time is "protected" from pull-outs for special programming (Title I, Resource, Remediation, etc...) •MS/HS STEM programming promotion plan	1, 8, 9, 10, 14, 17, 18, 19, 24
Culture Score:					**0**		

Domain 2: Curriculum							
Element	Investigating 0 points	Developing 1 point	Approaching 2 points	Innovating 3 points	Element Score	Evidenced By: (Examples listed below. You may choose your own evidence to support your score)	References
2.1 Curriculum Integration	Does not yet meet minimum indicators for Developing	At least 10 percent of planned, integrated STEM curriculum is evidence-based	At least 25 percent of planned, integrated STEM curriculum is evidence-based	At least 50 percent of planned, integrated STEM curriculum is evidence-based		•Curriculum summary •Documentation that curriculum is evidenced-based •Unit/lesson plans •Student products	1, 7, 8, 9, 10, 14, 18, 22
2.2 Computer Science	Does not yet meet minimum indicators for Developing	A computer science implementation plan has been developed that complies with IC 20-30-5-23	Elementary and Middle School: Standards-based computer science content is incorporated into the school curriculum for at least 50 percent of students High School: One computer science course is available to all students	Elementary and Middle School: Standards-based computer science content is incorporated into the school curriculum for 100 percent of students High School: Multiple computer science courses are available to all students		•Implementation plan •Agendas from PD/training sessions •Roster of participants •Course list/guide	1, 8, 9, 10
2.3 Employability Skills	Does not yet meet minimum indicators for Developing	Employability Skills Standards, based upon the appropriate grade band, are integrated into al least 10 percent of the planned curriculum	Employability Skills Standards, based upon the appropriate grade band, are integrated into al least 25 percent of the planned curriculum	Employability Skills Standards, based upon the appropriate grade band, are integrated into al least 50 percent of the planned curriculum		•Curriculum summary •Unit/lesson plans •Student products •Rubrics	1, 6, 8, 9, 10, 11, 14
2.4 Equity	Does not yet meet minimum indicators for Developing	General education teachers create materials for diverse learners based upon their understanding of students' academic needs	Special education teachers and support services teachers (ENL, Interpreters, etc...) provide accommodations and/or adaptations for diverse learners based upon their understanding of students' academic needs	General education teachers are connected with appropriate special education teachers and support services teachers (ENL, Interpreters, etc...) for necessary material development and refinement for diverse learners based upon their understanding of students' academic needs		•Samples of provided supports •Meeting agenda(s) •Guidance documents	2
2.5 Assessments	Does not yet meet minimum indicators for Developing	At least 10 percent of teachers use a variety of assessment data to idenitfy and address gaps in student learning related to STEM instruction	At least 25 percent of teachers use a variety of assessment data to idenitfy and address gaps in student learning related to STEM instruction	At least 50 percent of teachers use a variety of assessment data to idenitfy and address gaps in student learning related to STEM instruction		•Samples of assessments •Samples of feedback provided to students •Unit/lesson plans •Student products •Rubrics	8, 9, 10, 17, 22
Curriculum Score:					**0**		

Domain 3: Instruction							
Element	Investigating	Developing	Approaching	Innovating	Element	Evidenced By: (Examples listed below. You may	References

Element	0 points	1 point	2 points	3 points	Score	*choose your own evidence to support your score)*	References
3.1 STEM Instructional Approach Training	Does not yet meet minimum indicators for Developing	At least 10 percent of teachers have been trained in implementing a STEM instructional approach in the context of solving a real-world problem or challenge	At least 25 percent of teachers have been trained in implementing a STEM instructional approach in the context of solving a real-world problem or challenge	At least 50 percent of teachers have been trained in implementing a STEM instructional approach in the context of solving a real-world problem or challenge		•PD/training plan •Agenda(s) from PD/training session(s) •Roster of participants	8, 9, 10, 14, 17, 20, 21
3.2 STEM Instructional Approach Implementation	Does not yet meet minimum indicators for Developing	At least 10 percent of teachers use a STEM instructional approach in the context of solving a real-world problem or challenge	At least 25 percent of teachers use a STEM instructional approach in the context of solving a real-world problem or challenge	At least 50 percent of teachers use a STEM instructional approach in the context of solving a real-world problem or challenge		•Unit/lesson plans •Student products	1, 6, 7, 8, 9, 10, 14, 17, 22
3.3 Student Instructional Work Groups	Does not yet meet minimum indicators for Developing	At least two times per month and in at least 50 percent of classes, students work in groups as follows: 1) Students collaborate with peers based upon project/intended outcomes 2) Each group member has at least one assigned role that is critical to successful project/goal completion 3) Accountability is measured and recorded for each individual as well as the entire group	At least one time per week and in at least 50 percent of classes, students work in groups as follows: 1) Students collaborate with peers based upon project/intended outcomes 2) Each group member has at least one assigned role that is critical to successful project/goal completion 3) Accountability is measured and recorded for each individual as well as the entire group	At least two times per week and in at least 50 percent of classes, students work in groups as follows: 1) Students collaborate with peers based upon project/intended outcomes 2) Each group member has at least one assigned role that is critical to successful project/goal completion 3) Accountability is measured and recorded for each individual as well as the entire group		•Group assignment processes •Defined roles/responsibilities plans •Accountability plans •Unit/lesson plans •Rubrics	8, 9, 10, 13, 14, 22
3.4 Technology in Instruction	Does not yet meet minimum indicators for Developing	Students use a variety of technologies to enhance their learning in investigations and problem solving e.g., data collection/analysis, design, creation, virtual simulations, research and communication at least 10 percent of the time	Students use a variety of technologies to enhance their learning in investigations and problem solving e.g., data collection/analysis, design, creation, virtual simulations, research and communication at least 25 percent of the time	Students use a variety of technologies to enhance their learning in investigations and problem solving e.g., data collection/analysis, design, creation, virtual simulations, research and communication at least 50 percent of the time		•Unit/lesson plans •Student products	1, 8, 9, 10, 14, 17, 22
3.5 STEM Integration	Does not yet meet minimum indicators for Developing	At least 10 percent of teachers are implementing the planned integrated STEM learning opportunities on a quarterly basis (see 1.3)	At least 25 percent of teachers are implementing the planned integrated STEM learning opportunities on a quarterly basis (see 1.3)	At least 50 percent of teachers are implementing the planned integrated STEM learning opportunities on a quarterly basis (see 1.3)		•Unit/lesson plans •Student products	1, 7, 8, 9, 10, 11,17
Instruction Score:					0		

	Domain 4: Partnerships						
Element	**Investigating**	**Developing**	**Approaching**	**Innovating**	**Element Score**	*(Examples listed below. You may choose your own evidence to support your score)*	**References**
	0 points	**1 point**	**2 points**	**3 points**			
4.1 Culture	Does not yet meet minimum indicators for Developing	At least one community partner assists with informing the school's STEM plan	At least two community partners, from different sectors, assist with informing the school's STEM plan	At least three community partners assist with informing the school's STEM plan		•Meeting minutes •Agenda(s) •Roster of participants	1, 4, 11, 22
4.2 STEM Career Exploration	Does not yet meet minimum indicators for Developing	Elementary and Middle School: At least 10 percent of STEM units have career exploration/information as a part of the curriculum High School: At least 10 percent of students have direct experiences with STEM professionals and/or professional STEM work environments quarterly	Elementary and Middle School: At least 25 percent of STEM units have career exploration/information as a part of the curriculum High School: At least 25 percent of students have direct experiences with STEM professionals and/or professional STEM work environments quarterly	Elementary and Middle School: At least 50 percent of STEM units have career exploration/information as a part of the curriculum High School: At least 50 percent of students have direct experiences with STEM professionals and/or professional STEM work environments quarterly		•Curriculum summary •Unit/lesson plans •Student products •Documentation of participation	1, 4, 8, 9, 10, 11, 22
4.3 Community Engagement	Does not yet meet minimum indicators for Developing	One to two established community partners are actively engaged in STEM curriculum and/or activities	Three to four established community partners are actively engaged in STEM curriculum and/or activities	Five or more established community partners are actively engaged in STEM curriculum and/or activities		•List of partners •Samples of participation/pupport provided by each partner (may include virtual participation/supports)	1, 4, 8, 9, 10, 11, 14, 21, 22
4.4 Extended Learning	Does not yet meet minimum indicators for Developing	STEM activities such as robotics and engineering clubs, internships, and apprenticeships are available and accessible by at least 10 percent of students in an on-going basis	STEM activities such as robotics and engineering clubs, internships, and apprenticeships are available and accessible by at least 25 percent of students in an on-going basis	STEM activities such as robotics and engineering clubs, internships, and apprenticeships are available and accessible by at least 50 percent of students in an on-going basis		•Summary of opportunities •Calendar of events •Transportation options	1, 11, 17, 18
4.5 Equity	Does not yet meet minimum indicators for Developing	Provides, at least one time per year, opportunities to inspire and inform under-represented students about careers in STEM fields	Provides, at least two times per year, opportunities to inspire and inform under-represented students about careers in STEM fields	Provides, at least three times per year, opportunities to inspire and inform under-represented students about careers in STEM fields		•Equity plan •Summary of opportunities •Calendar of events	1, 8, 9, 10, 19
Partnerships Score:					0		

Total Score	**0 (out of 78)**				

Key Terminology		
Term	**Definition**	**Resources**
Computer Science	Computer science is defined by the content found in Indiana's Computer Science Standards	IC 20-30-5-23
Culture	The way teachers and other staff members work together and the set of beliefs, values, and assumptions they share.	WestED
Curriculum	The lessons and academic content taught in a school or in a specific course or program.	IDOE STEM
Curriculum Integration	The materials and pedagogical strategies used by multidisciplinary teams of teachers collaborate to plan and present related lessons that center around a central theme, issue or problem.	ConnectEd
Employability Skills	A group of essential abilities that involve the development of a knowledge base, expertise level and mindset that is increasingly necessary for success in the modern workplace. IC 20-30-5-14 states that, not later than July 1, 2019, each school within a school corporation shall include interdisciplinary employability skills standards established by the department, in conjunction with the department of workforce development, and approved by the state board in the school's curriculum.	IDOE Resources IC 20-30-5-23
Inquiry-Based Instruction	A pedagogy that can be used to deliver lessons on a daily basis in the primary disciplines and beyond. It begins with the teacher presenting the students with a question to explore or having students develop their own questions. As the students investigate the question, they give priority to evidence that is gathered through research and exploring and formulate explanations to describe their findings based on evidence or data collected. Students connect explanations to their knowledge and current understandings in the discipline and then communicate and justify their explanations.	American Association for the Advancement of Science Resource
Problem-Based and/or Project-Based Curriculum	Generally spans one to several weeks of instruction that should be delivered in an integrated manner including science, mathematics, and other disciplines to show authentic connections.	Coming Fall 2019
Problem-Based and/or Project-Based Learning (PBL)	A pedagogy that anchors the teaching of disciplinary content in the context of solving a real-world problem or challenge.	Ford NGL PBLWorks Magnify Learning
Community Partners	Business, higher-education, community organizations	Georgia STEM/STEAM Model

STEM Education	STEM education is the integration of the science, technology, engineering and math disciplines with the goal of deploying problem/project/inquiry-based approaches to teaching and learning in the classroom, while developing critical thinking skills and creating pathways to postsecondary and career opportunities.	Six-Year Indiana STEM Strategic Plan						
STEM Instruction	The integration of the science, technology, engineering and math disciplines with the goal of deploying problem/project/inquiry-based approaches to teaching and learning in the classroom, while developing critical thinking skills and creating pathways to postsecondary readiness and career opportunities.	Six-Year Indiana STEM Strategic Plan						
		NRC Resource						
STEM Instructional Approach	Accepted STEM instructional approaches referenced in the Six-Year Indiana STEM Strategic Plan are: -Problem-based approaches -Project-based approaches -Inquiry-based approaches	Six-Year Indiana STEM Strategic Plan						
Under-Represented Students	Females, minorities, and students with disabilities	NSF Report						